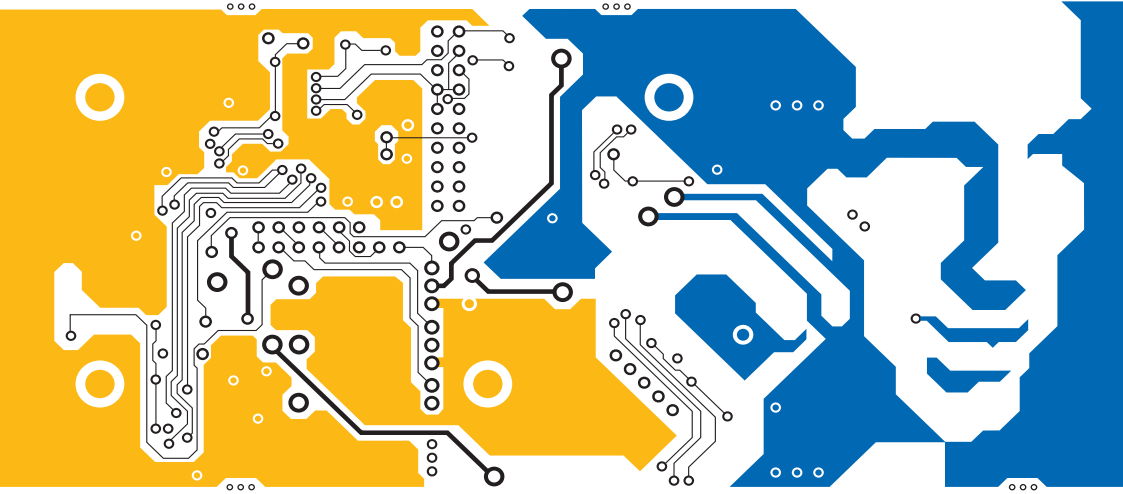




# L-Band IF Interface Unit

## 6550

SATELLITE COMMUNICATIONS



USER GUIDE

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Codan part number 15-44020-EN Issue 2, May 2004

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This user guide is for installation technicians and operators of the L-Band IF Interface Unit 6550.

The guide contains the following sections:

- [Section 1](#) [Interface unit compliance](#)—compliance information and safety notices
- [Section 2](#) [Overview](#)—general description of the interface unit
- [Section 3](#) [Installation](#)—installation instructions for the interface unit
- [Section 4](#) [Setting up and operating the interface unit](#)—description of switch settings required for the interface unit and the meaning of the LED indicators
- [Section 5](#) [Maintenance and fault finding](#)—description of how to maintain and fault find an interface unit
- [Section 6](#) [Specifications](#)—specifications for the interface unit
- [Section 7](#) [Drawings](#)—panel drawings for the interface unit
- [Appendix A](#) [Definitions](#)—explains the terms and abbreviations used in this guide

An index can be found at the end of the guide.

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# 1 Interface unit compliance

---



**This section contains the following topics:**

[Introduction \(4\)](#)

[European Radio and Telecommunications Terminal  
Equipment Directive \(5\)](#)

[Electromagnetic compatibility and safety notices \(7\)](#)

## Introduction

This section describes how to ensure the L-Band IF Interface Unit 6550 complies with the European Electromagnetic Compatibility Directive 89/336/EEC and the European Low Voltage Directive 73/23/EEC as called up in the European Radio and Telecommunications Terminal Equipment Directive 1999/5/EC.

The CE Declaration of Conformity for this product is listed on [page 49, \*Associated documents\*](#). This document can be made available upon request to Codan or a Codan-authorized supplier.

# European Radio and Telecommunications Terminal Equipment Directive

The L-Band IF Interface Unit 6550 has been tested and complies with the following standards:

- ETSI EN 301 428 V1.2.1 (2001–02) ‘Satellite Earth Stations and Systems (SES); Harmonized EN for Very Small Aperture Terminal (VSAT); Transmit-only, transmit/receive or receive-only satellite earth stations operating in the 11/12/14 GHz frequency bands covering essential requirements under article 3.2 of the R&TTE Directive’
- ETSI EN 301 443 V1.2.1 (2001–02) ‘Satellite Earth Stations and Systems (SES); Harmonized EN for Very Small Aperture Terminal (VSAT); Transmit-only, transmit/receive or receive-only satellite earth stations operating in the 4 GHz and 6 GHz frequency bands covering essential requirements under article 3.2 of the R&TTE Directive’
- ETSI EN 301 489-1 V1.4.1 (2002–08) ‘Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements’
- ETSI EN 301 489-12 V1.1.1 (2000–12) ‘Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 12: Specific conditions for Very Small Aperture Terminal, Satellite Interactive Earth Stations operated in the frequency ranges between 4 GHz and 30 GHz in the Fixed Satellite Service (FSS)’
- EN 60950 (2000) ‘Safety of Information Technology Equipment, including electrical business machines’

Compliance with these standards is sufficient to fulfil the requirements of the Radio and Telecommunications Terminal Equipment Directive 1999/5/EC, which encompasses the following directives:

- European EMC Directive, 89/336/EEC
- European Low Voltage Directive, 73/23/EEC with no lower voltage limit

Equipment supplied by Codan that satisfies these requirements is identified by the **CE 0682** markings on the model label of the product.

**CAUTION** Some countries may restrict the use of satellite communications equipment on certain frequency bands or require such equipment to be licensed. It is the user's responsibility to check the specific requirements with the appropriate communications authorities.

### **Health requirements (human exposure to electromagnetic fields)**

The L-Band IF Interface Unit 6550 has been assessed against the health requirements in article 3.1a of the R&TTE Directive (1999/5/EC) complying with VDE0848, ICNIRP and FCC health requirements.

### **Protection of the radio spectrum**

It is the responsibility of the user to ensure any modem used in conjunction with the L-Band IF Interface Unit 6550 complies with EN 301 428 or EN 301 443 so that CE compliance with respect to radiated spurious signals is maintained. If necessary, contact Codan for more information.

# Electromagnetic compatibility and safety notices

## Electromagnetic compatibility

To ensure compliance with the EMC Directive is maintained, you must:

- Use standard shielded cables supplied from Codan (where applicable).
- Ensure the covers for the equipment are fitted correctly.

**CAUTION** If it is necessary to remove the covers at any stage, they must be refitted correctly before using the equipment.

## Electrical safety



To ensure compliance with the European Low Voltage Directive is maintained, you must install the L-Band IF Interface Unit 6550 in accordance with the following safety precautions. These precautions must be checked before applying AC power to the interface unit.

- WARNING**
  - A protective earth connection must be included in the mains wiring to the interface unit (see [page 8](#), *Earth symbols*).
  - The protective cover must always be fitted when the interface unit is connected to the AC mains.
- Use the standard AC mains cable supplied (Codan part number 67-90301).

## Earth symbols

Earth connection points have been provided on the L-Band IF Interface Unit 6550. The symbols shown in [Table 1](#) are used to identify the earths on the equipment.

Table 1: Earth symbols

Symbol	Meaning
	Chassis earth
	Protective earth



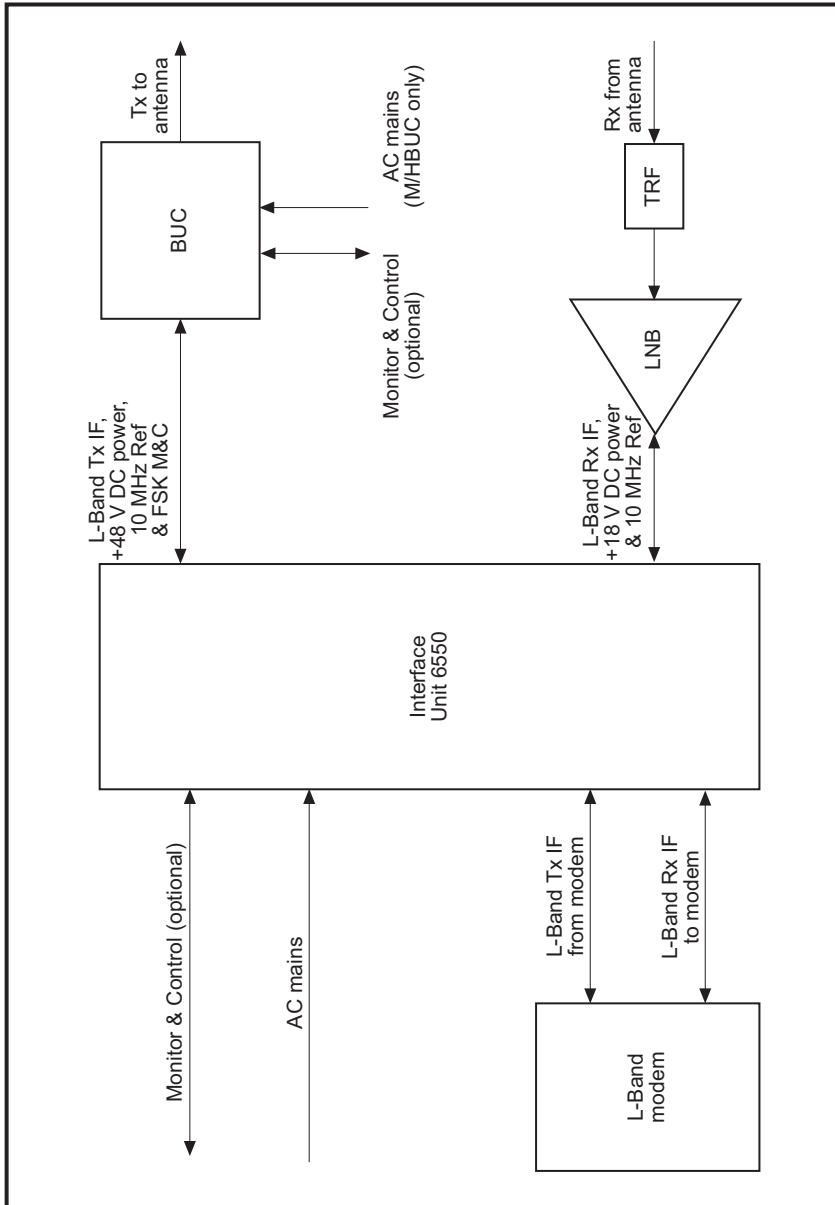
The Interface Unit 6550 is required if the modem used in your L-Band IF transceiver system does not produce the signals required by the BUC and LNB. It supplies the DC power and 10 MHz reference signals to the BUC and LNB, and provides serial communications with the BUC via FSK signalling.

The interface unit also provides the following functions:

- monitors and displays the fault status of the BUC and LNB via the LEDs on the front panel (see [page 21](#), *LED indicators*)
- enables remote monitoring and control of the BUC through a communications channel

See [Figure 1](#) for the L-Band IF transceiver configuration with an interface unit.

Figure 1: L-Band IF transceiver with an interface unit



# 3 Installation

---



**This section contains the following topics:**

[Unpacking the equipment \(12\)](#)

[Installing the Interface Unit 6550 \(13\)](#)

[Interface unit connectors \(15\)](#)

## Unpacking the equipment

Ensure that the packing boxes are upright, as indicated by the printing on the boxes. Open each packing case and examine the contents for signs of damage. If damage is detected, contact Codan immediately to obtain an RMA before returning the equipment. Failure to do so may result in any warranty being void.

If all units are in a satisfactory condition, follow the installation procedures in this section.

## Installing the Interface Unit 6550

The interface unit is mounted indoors in a 19" rack.

When installing the interface unit:

- ensure you mount the unit in a position that receives adequate ventilation
- ensure the vents are unobstructed

### Connecting the AC power

To connect the interface unit to the AC power:

- Connect the mains cord to the AC socket on the rear panel of the interface unit.
- Connect the mains cord to the AC mains.

### Connecting the outdoor equipment

To connect the interface unit to the outdoor equipment:

- Connect the cable from the BUC to the **BUC** connector on the rear panel of the interface unit.
- Connect the cable from the LNB to the **LNB** connector on the rear panel of the interface unit.
- Connect the chassis earth on the interface unit to the protective earth on the rack.

## Connecting the monitor and control interface

To connect the interface unit to the monitor and control interface:

- Connect your monitor and control equipment to the **RS232, COM1** or **COM2** connector on the rear panel of the interface unit, e.g. connect a Remote Controller 6570 using the appropriate cable (Codan part number 08-06183-001).

## Connecting an external 10 MHz reference signal (optional)

**NOTE** This is only applicable if you are using an external 10 MHz reference signal instead of the internal 10 MHz reference oscillator.

The external signal must be provided by the user. It enables the transmitted RF signal to be phase locked to the external master reference. This facility also enables higher frequency stability than is possible if you are using the internal reference oscillator.

To connect an external 10 MHz reference signal:

- Connect the external 10 MHz reference signal to the **10 MHz Ref I/P** connector on the rear panel of the interface unit.
- Set the **10 MHz Ref INT/EXT** switch to 10 MHz Ref EXT.

## Interface unit connectors

There are eight connectors on the rear panel of the interface unit (see drawing [03-01125](#)). Details of these connectors are provided in [Table 2](#).

Table 2: Interface unit connectors

Connector	Type	Function
<b>Modem Tx</b>	SMA female	Carries transmit IF signals from modem.
<b>BUC</b>	50 $\Omega$ N-type female	Carries IF, FSK and 10 MHz reference signals, and DC supply.
<b>LNB</b>	75 $\Omega$ F-type female	Carries IF and 10 MHz reference signals, and DC supply.
<b>Modem Rx</b>	SMA female	Carries receive IF signals to modem.
<b>10 MHz Ref I/P</b>	50 $\Omega$ BNC female	Connection point for external 10 MHz reference signal.
<b>RS232</b>	9-way D-type	See <a href="#">Table 3 on page 16</a> .
<b>COM1</b>	15-way D-type	See <a href="#">Figure 2 on page 17</a> .
<b>COM2</b>	15-way D-type	See <a href="#">Figure 3 on page 18</a> .

## RS232 connector

[Table 3](#) lists the pin assignments of the **RS232** connector.

Table 3: Pin assignments of the RS232 connector

Pin	Type	Description
2	Output	RS232 TxD
3	Input	RS232 RxD
5	Ground	Signal ground
7	Input	RS232 RTS
8	Output	RS232 CTS

## COM1 and COM2 connectors

NOTE Although [Figure 2](#) and [Figure 3](#) show separate RS422/485 and RS232 drivers, there is only one set of drivers. This single set of drivers is connected to the **COM1**, **COM2** and **RS232** connectors.



Figure 2: Pin assignments of the COM1 connector

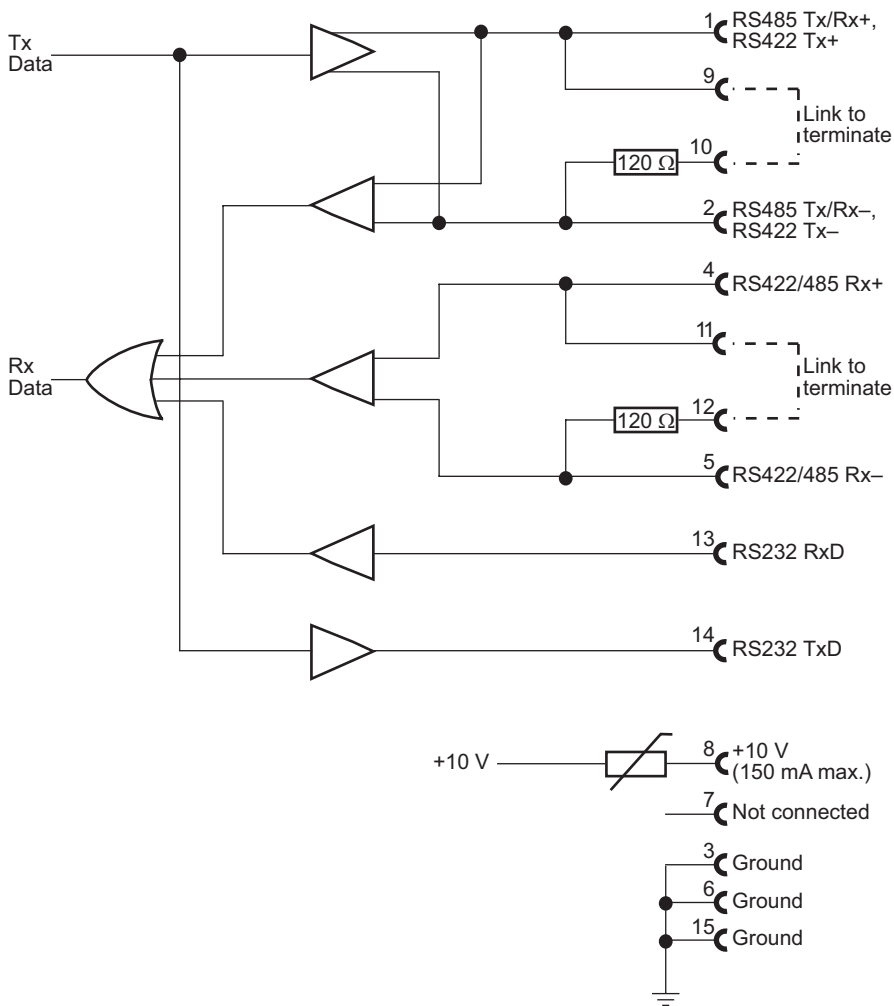
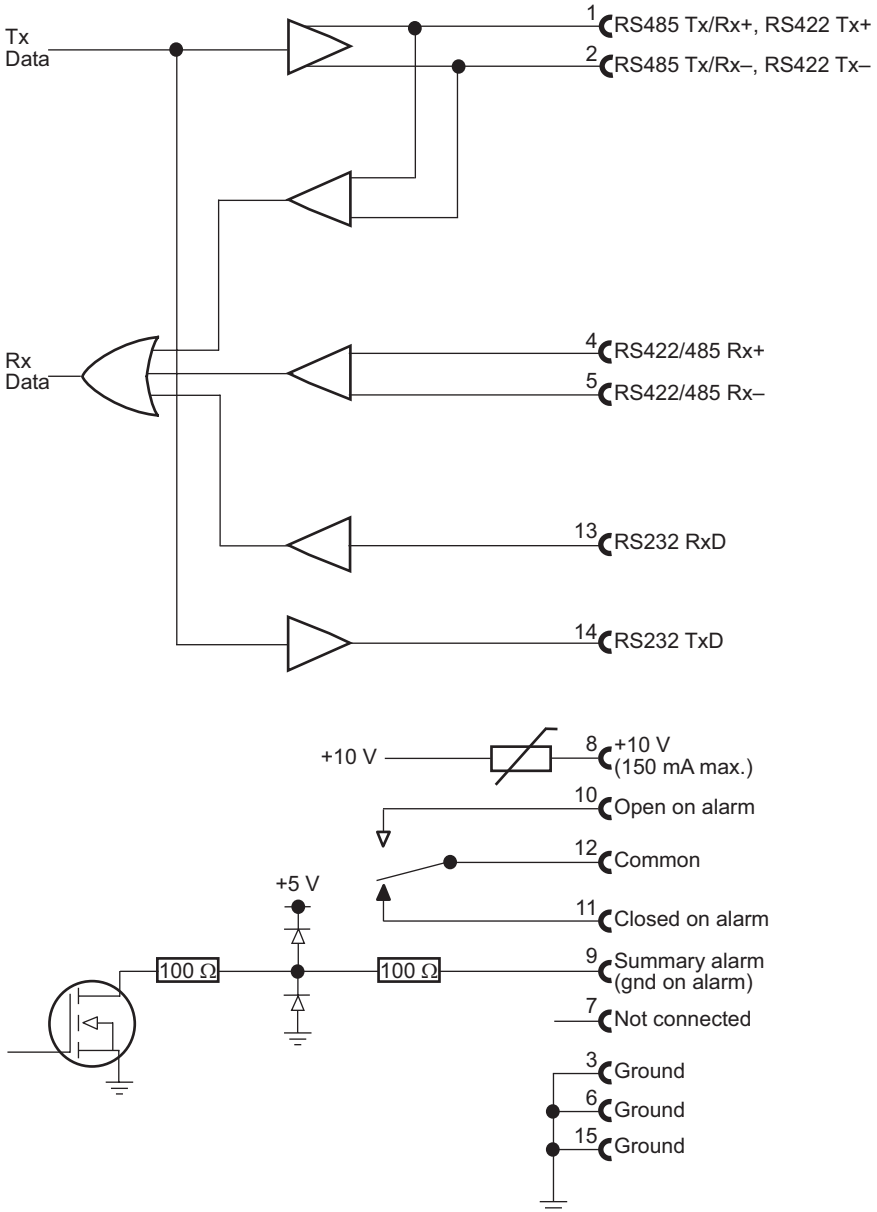


Figure 3: Pin assignments of the COM2 connector



# 4 Setting up and operating the interface unit

---



**This section contains the following topics:**

[Setting the configuration switches on the interface unit \(20\)](#)

[LED indicators \(21\)](#)

## Setting the configuration switches on the interface unit

There are two configuration switches on the rear panel of the interface unit (see drawing [03-01125](#)). These switches must be set according to the reference signal you are using and the type of BUC in your L-Band IF transceiver system. See [Table 4](#) for the switch options.

Table 4: Switch settings

Switch	Setting
<b>10 MHz Ref INT/EXT</b>	<p>If you are using the internal 10 MHz reference oscillator, set this switch to 10 MHz Ref INT.</p> <p>If you are using an external 10 MHz reference signal, set this switch to 10 MHz Ref EXT.</p>
<b>M/HBUC/LBUC</b>	<p>Set the switch according to the BUC you have in your L-Band transceiver system, i.e. medium/high power BUC or low power BUC. It adjusts the current alarm threshold to the level applicable for the BUC (for alarm thresholds see <a href="#">page 40, Fault detection</a>).</p>

## LED indicators

There are six LED indicators on the front panel of the interface unit (see drawing [03-01125](#)). These LEDs indicate the operating state of the transceiver system (see [Table 5](#)).

Table 5: LED indicators on the interface unit and their meanings

LED	State	Indicates...
<b>Summary Alarm</b>	Green	System is operating correctly.
	Red	A fault is detected in either the BUC, LNB or interface unit.
	Off	Power is not supplied to the interface unit.
<b>Int. Reference</b>	Green	Internal 10 MHz reference oscillator is selected.
	Alternating green/red	Internal 10 MHz reference oscillator is selected and is warming up.
	Off	External 10 MHz reference signal is selected.
<b>Ext. Reference</b>	Green	External 10 MHz reference signal is selected.
	Off	Internal 10 MHz reference oscillator is selected.
<b>Fan</b>	Green	The fan is operating normally.
	Red	A fan fault is detected.
<b>BUC</b>	Green	Power and 10 MHz reference signal are supplied to the BUC and it is operating correctly.
	Red	The current drawn by the BUC is outside the allowed range (see <a href="#">page 40, Fault detection</a> ), which indicates the BUC is faulty or the PA in the BUC has been switched off manually.
<b>LNB</b>	Green	Power is supplied to the LNB and it is operating correctly.
	Red	The current drawn by the LNB is outside the allowed range (see <a href="#">page 40, Fault detection</a> ).

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# 5 Maintenance and fault finding

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**This section contains the following topics:**

[Servicing requirements \(24\)](#)

[Replacing the fuses \(25\)](#)

[Checking the reference oscillator frequency \(26\)](#)

[Fault finding \(29\)](#)

## Servicing requirements

If you find that the interface unit is faulty, contact your Codan representative or Codan customer service staff. Before returning goods to Codan you must obtain an RMA to authorise the return of your goods.

**WARNING** Do not attempt to repair the unit as you may cause further faults and void the manufacturer's warranty.



## Replacing the fuses

To replace the fuses:

- Switch off the AC mains supply via the isolation switch and unplug the mains cord from the interface unit.
- Locate the fuse holder on the AC mains inlet plug at the rear of the interface unit.
- Pull out the fuse holder and lift the cap.
- Remove the blown fuses from the fuse holder.
- Replace the fuses with 2 A delay ceramic case fuses (M20 × 5 mm).

**WARNING** You may damage the interface unit if incorrect fuses are fitted.

- Replace the cap and re-insert the fuse holder.
- Plug in the AC mains supply cord.
- Switch on the AC mains supply via the isolation switch.

## Checking the reference oscillator frequency

Check the reference oscillator frequency every two years.

### CAUTION

Because of the high frequency accuracy required, the frequency measurement equipment used for adjusting the reference oscillator of the transceiver must have an accuracy and resolution of  $1 \times 10^{-8}$  (e.g. 140 Hz in 14 GHz or better).

Two techniques may be used to check the reference oscillator frequency indirectly:

- remote measurement
- local measurement of RF output or 10 MHz reference

### NOTE

Before conducting frequency measurements, you must allow the interface unit to warm up for approximately 1 hour. This ensures the reference oscillator has sufficient time to stabilise.

### NOTE

Improved accuracy is obtained when the equipment is operated continuously for one to two days.

## Remote measurement

Remote measurement is the preferred method for checking the reference oscillator frequency.

To check the frequency, transmit a test carrier from your satellite station and have its frequency checked at a major earth station equipped with the appropriate equipment (for example, a spectrum analyser locked to a high stability frequency reference).

If you use this method, you must know the actual offset frequency of the satellite (it may be measured by the major earth station). You must also be sure that the modulator or signal generator generating the Tx IF input is accurate to within 10 Hz.

To provide voice communication between your station and the major earth station, an orderwire circuit or other communication channel is required.

## Local measurement

### RF output measurement

You can measure the RF frequency of a test carrier at the Tx RF output of the transceiver with either:

- a high stability and high sensitivity frequency counter, or
- a spectrum analyser locked to a high stability reference

**WARNING** Do not connect the frequency counter or spectrum analyser directly to the RF output. A suitably-rated attenuator or coupler must be used for this connection.

You must be sure that the modulator or signal generator generating the Tx IF input is accurate to within 10 Hz.

## 10 MHz reference measurement

The 10 MHz reference signal is measured at either the **BUC** or **LNB** connector on the rear panel of the interface unit using a high stability and high sensitivity frequency counter that is capable of accuracy to within 0.1 Hz.

**WARNING** DC voltages are present on the **BUC** and **LNB** connectors so a DC block is required before a frequency counter can be connected.

## Adjusting the reference oscillator frequency

To adjust the reference oscillator frequency:

- Locate the frequency control **ADJ.** screw on the rear panel of the interface unit (see drawing [03-01125](#)).
- If you are using the local measurement method, connect the frequency counter or the spectrum analyser to the RF output via an attenuator/coupler to the **BUC** and **LNB** connectors via a DC block.
- Use a small flat-bladed screwdriver to adjust the frequency control a small amount.
- Measure the carrier frequency.  
One turn changes the frequency by approximately  $\pm 10$  Hz at 10 MHz.
- Re-measure the frequency and repeat the previous steps until the RF carrier is within  $\pm 30$  Hz of the required frequency.
- For improved accuracy, run the equipment for one to two days and repeat the procedure.

## Fault finding

The fault finding information provided in this section is designed to locate faulty modules and cables. Faults are indicated by the LEDs on the interface unit.

If a fault is indicated on the interface unit, it is recommended that you check the cables and the cable connections first before proceeding with further fault finding.

### If technical assistance is required...

If the fault finding procedures do not locate the faulty module or cable, or if further technical assistance is required for any other reason, please contact the Customer Service Engineering staff. For the most rapid response, please call the Codan office that is currently in office hours (see [Table 6](#)).

Outside of normal office hours, Codan has Customer Service Engineers on call to provide emergency technical assistance. They will either answer your call immediately or return your call as soon as possible. The contact phone numbers for after hours emergency technical assistance are listed in [Table 6](#).

Table 6: Customer service contact numbers and email addresses

Region	Office hours contact number	After hours contact number	Email address
Asia/Pacific	+61 8 8305 0311	+61 8 8305 0427	asiatech.support@codan.com.au
Europe, Middle East & Africa	+44 1252 717 272	+44 1252 741 300	uktech.support@codan.com.au
The Americas	+1 703 361 2721	+1 703 366 3690	ustech.support@codan.com.au

If you are connected to a voice mail system when you call, please follow the instructions carefully, i.e. leave a brief, clear description of your problem and your name and contact phone number including the country code.

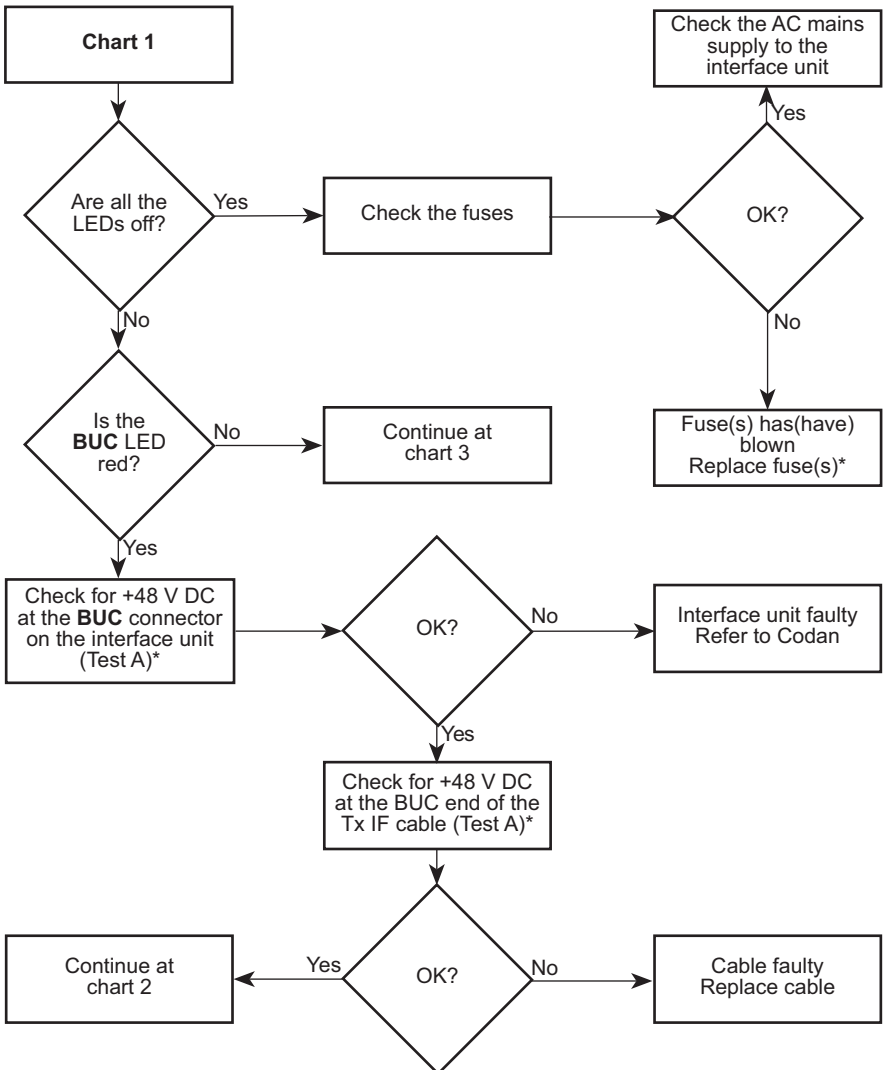
## Using the fault diagnosis charts

The tests indicated in the diagnosis charts can be found at the end of this section. When an ‘\*’ appears in a diagnosis chart, it indicates that you are to refer to the relevant test.

You should be able to locate simple faults with minimal test equipment. The most effective technique when dealing with complex faults is to substitute modules.

**CAUTION** During fault finding or performance testing, disconnect the Tx IF signal and/or terminate the BUC output into a suitably rated dummy load. This will ensure that unwanted signals are not transmitted.

Figure 4: Interface unit fault diagnosis chart 1



\*Refer to test procedures or relevant section of text

Figure 5: Interface unit fault diagnosis chart 2

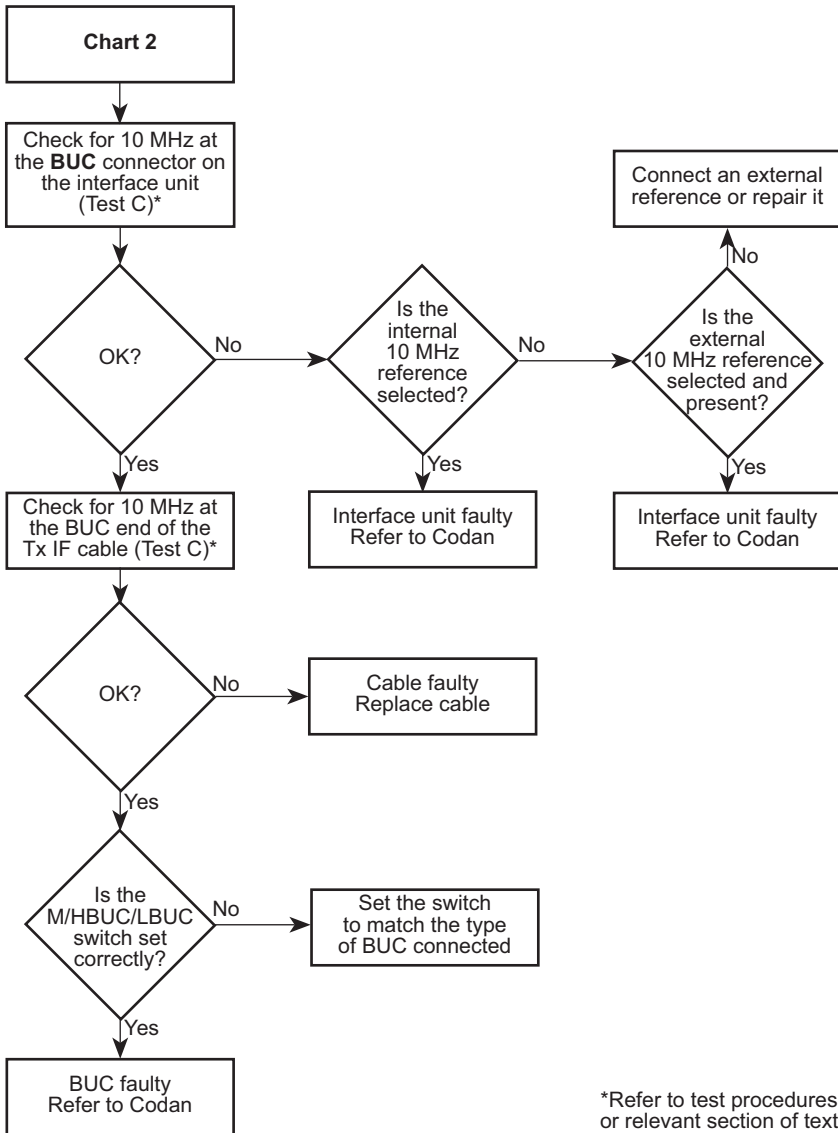




Figure 6: Interface unit fault diagnosis chart 3

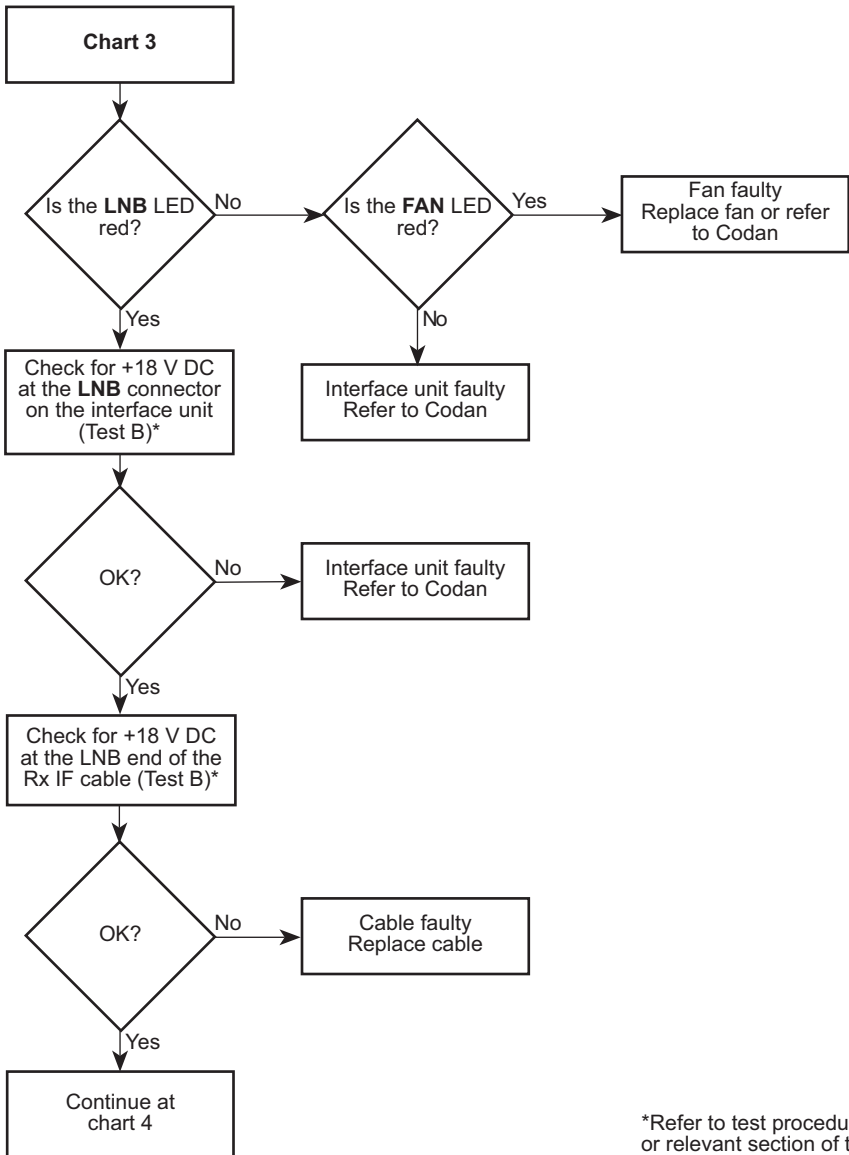
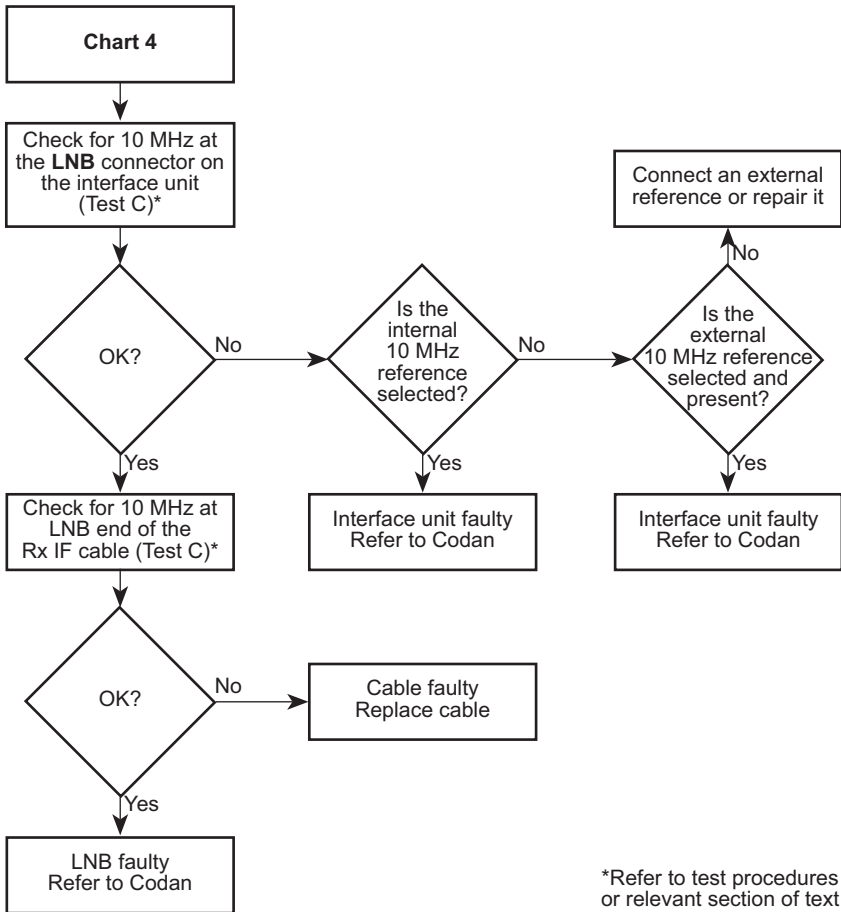


Figure 7: Interface unit fault diagnosis chart 4



## Test procedures

The following tests are to be used in conjunction with the fault diagnosis charts.

Table 7: Test A

Procedure	Comment
Either: <ul style="list-style-type: none"> <li>• measure the DC voltage at the BUC end of the Tx IF cable, or</li> <li>• measure the DC voltage at the <b>BUC</b> connector on the interface unit</li> </ul>	The DC voltage should be 48 V DC $\pm 1$ V DC.

Table 8: Test B

Procedure	Comment
Either: <ul style="list-style-type: none"> <li>• measure the DC voltage at the LNB end of the Rx IF cable, or</li> <li>• measure the DC voltage at the <b>LNB</b> connector on the interface unit</li> </ul>	The DC voltage should be 18 V DC $\pm 1$ V DC.

Table 9: Test C

Procedure	Comment
<p>Measure 10 MHz level at one of the following:</p> <ul style="list-style-type: none"> <li>• the BUC end of the Tx IF cable</li> <li>• the LNB end of the Rx IF cable</li> <li>• the <b>BUC</b> connector on the interface unit</li> <li>• the <b>LNB</b> connector on the interface unit</li> <li>• the cable connected to the external 10 MHz reference input</li> </ul> <p style="text-align: center;">DC voltages are present on the IF cables and connectors. A DC block is required when making these measurements.</p> <p><b>WARNING</b></p>	<p>The 10 MHz input and output signal levels should be 0 dBm <math>\pm</math>2 dBm.</p>

# 6 Specifications

---



**This section contains the following topics:**

[Transmit and receive \(38\)](#)

[Environmental \(40\)](#)

[Physical \(41\)](#)

## Transmit and receive

### Transmit and receive IF paths

Frequency range	950 to 1 750 MHz
Impedance	50 $\Omega$ (75 $\Omega$ LNB Rx IF input)
Flatness	$\pm 0.25$ dB over 950 to 1 750 MHz
Connectors	
Modem Tx and Rx IF	SMA female
BUC Tx IF	N-type female
LNB Rx IF	F-type female

### Signals on transmit IF output

DC power	48 V DC $\pm 1$ V DC at 1.8 A maximum
10 MHz reference	0 dBm $\pm 2$ dBm
FSK M&C	-2 dBm nominal

### Signals on receive IF input

DC power	18 V DC $\pm 1$ V DC at 0.7 A maximum
10 MHz reference	0 dBm $\pm 2$ dBm

**Reference characteristics**

Frequency	10 MHz
Stability over $-5$ to $+50^{\circ}\text{C}$	$\pm 5 \times 10^{-8}$ maximum
Aging	$\pm 1 \times 10^{-7}$ /year maximum
Phase noise (SSB)	
100 Hz	$-140$ dBc/Hz maximum
1 kHz	$-150$ dBc/Hz maximum
10 kHz	$-160$ dBc/Hz maximum
100 kHz	$-160$ dBc/Hz maximum

**External reference input**

Frequency	10 MHz
Input level	0 dBm $\pm 2$ dBm
Connector	BNC female
Impedance	50 $\Omega$

**BUC monitor and control**

Mode	FSK to/from BUC
User interfaces	RS232, RS422/485
Connectors	
RS232	DB9
RS422/485	DB15

**Fault detection**

Transmit path current drain

LBUC setting < 0.4 A or > 2.25 A causes a fault indication

M/HBUC setting < 20 mA causes a fault indication

Receive path current drain < 100 mA or > 800 mA causes a fault indication

**Mains power**

Voltage 115/230 V AC  $\pm 15\%$  V AC autoranging

Frequency 47 to 63 Hz

Current 0.5 A nominal

**Environmental**

**Operating temperature range** -5 to +50°C

**Relative humidity** 90% non-condensing

**Cooling** Forced air



## Physical

**Size** 483 mm W × 220 mm D ×  
44 mm H

**Weight** 3 kg

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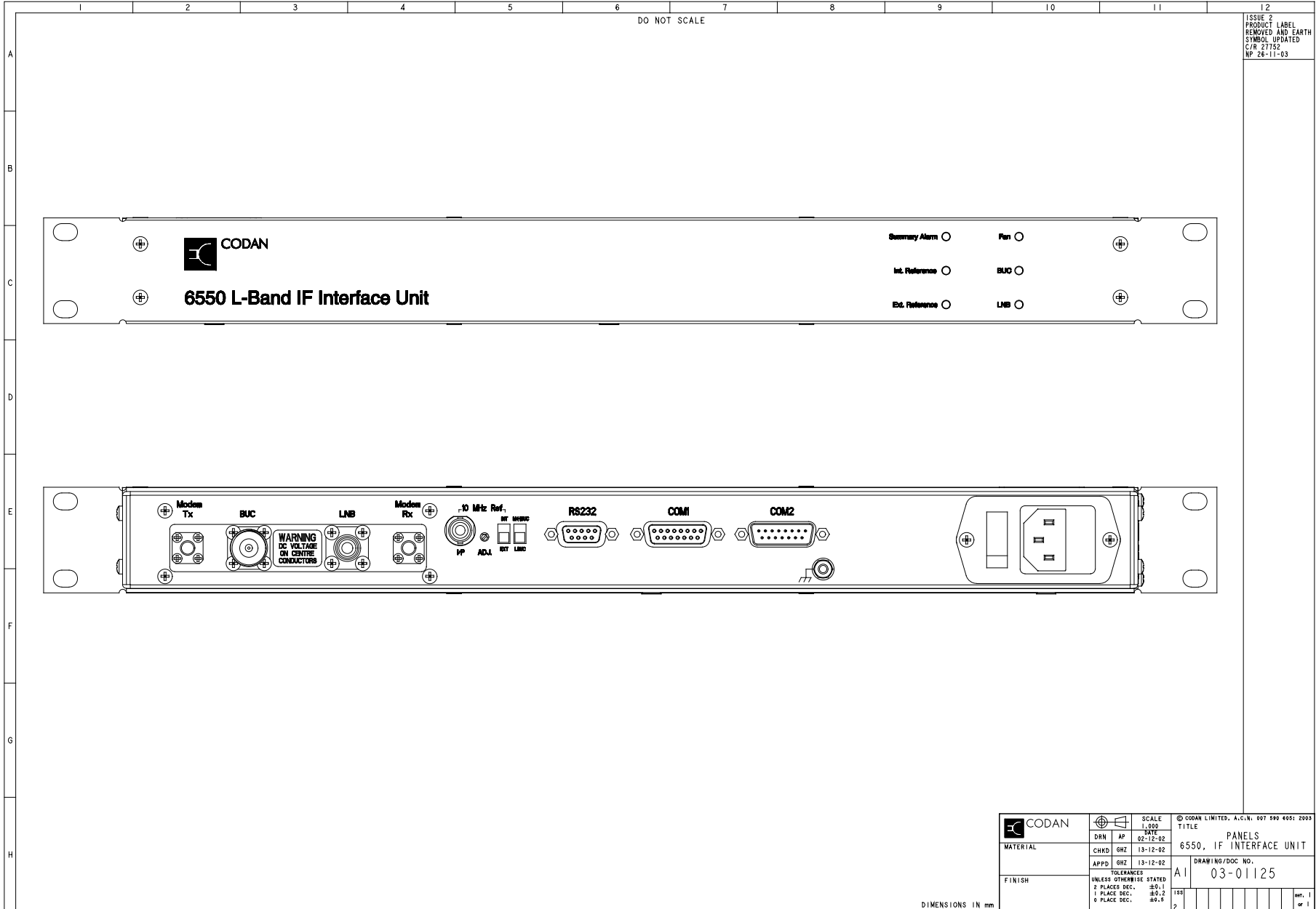
# 7 Drawings

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<b>Drawing No.</b>	<b>Description</b>
<a href="#">03-01125</a>	Panels, 6550, IF Interface Unit

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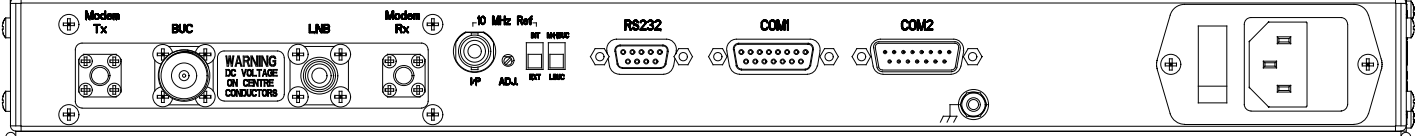
DO NOT SCALE

ISSUE 2  
 PRODUCT LABEL  
 REMOVED AND EARTH  
 SYMBOL UPDATED  
 C/R 27152  
 NP 26-11-03



**6550 L-Band IF Interface Unit**

- Summary Alarm
- Int. Reference
- Ext. Reference
- Fan
- BUO
- LNB



		SCALE 1:1000	© CODAN LIMITED, A.C.N. 697 599 405: 2003
DRN	AP	DATE 02-12-02	TITLE PANELS
CHKD	GHZ	13-12-02	6550, IF INTERFACE UNIT
APPD	GHZ	13-12-02	DRAWING/DOC NO.
FINISH		TOLERANCES UNLESS OTHERWISE STATED	A1 03-01125
		2 PLACE DEC. ±0.1	mm. 1 or 1
		3 PLACE DEC. ±0.2	

DIMENSIONS IN mm

# Appendix A—Definitions

---



**This section contains the following topics:**

[Standards and icons \(46\)](#)

[Acronyms and abbreviations \(46\)](#)

[Units \(48\)](#)

[Unit multipliers \(48\)](#)

[About this issue \(49\)](#)

## Standards and icons

The following standards and icons are used in this guide:

<b>This typeface</b>	<b>Means...</b>
<b>BOLD/Bold</b>	a button, switch, LED, or connector
<i>Italics</i>	a cross-reference or text requiring emphasis
<b>This icon</b>	<b>Means...</b>
□	a step within a task
NOTE	the text provided next to this icon may be of interest to you
CAUTION	your actions may lead to loss of data, privacy or signal quality
WARNING	your actions may cause harm to yourself or the equipment

## Acronyms and abbreviations

<b>This term</b>	<b>Means...</b>
AC	alternating current
BUC	block up converter (see also <i>HBUC</i> , <i>LBUC</i> , <i>MBUC</i> )
CTS	clear to send
DC	direct current
EMC	electromagnetic compatibility
EXT.	external
FSK	frequency shift keying

<b>This term</b>	<b>Means...</b>
HBUC	high power block up converter
IF	intermediate frequency
INT.	internal
LBUC	low power block up converter
LED	light emitting diode
LNB	low noise block converter
MBUC	medium power block up converter
PA	power amplifier
Ref	reference
RF	radio frequency
RMA	return materials authorisation
R&TTE	radio and telecommunications terminal equipment
RTS	ready to send
Rx	receive
RxD	receive data
SSB	single sideband
TRF	transmit reject filter
Tx	transmit
TxD	transmit data
VSWR	voltage standing wave ratio



## Units

<b>Measurement</b>	<b>Unit</b>	<b>Abbreviation</b>
Current	ampere	A
Distance	metre	m
Frequency	hertz	Hz
Impedance	ohm	$\Omega$
Power	decibels relative to a carrier	dBc
Power	decibels relative to 1 mW	dBm
Temperature	degrees Celsius	$^{\circ}\text{C}$
Voltage	volt	V

## Unit multipliers

<b>Unit</b>	<b>Name</b>	<b>Multiplier</b>
m	milli	0.001
d	deci	0.1
k	kilo	1 000
M	mega	1 000 000
G	giga	1 000 000 000

## About this issue

This is the second issue of the L-Band IF Interface Unit 6550 User Guide. It provides compliance information and safety notices for using the unit with L-Band IF Transceiver 6700/6900 series equipment.

### Associated documents

Other publications associated with the L-Band IF Interface Unit 6550 User Guide are:

- L-Band IF Transceiver 6700/6900 series User Guide (Codan part number 15-44017-EN)
- Satellite Communication Equipment Installation Handbook (Codan part number 15-44016-EN)
- Declaration of Conformity for the 6550 IF Interface Unit (Codan part number 19-40101)

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